REMARKS/ARGUMENTS

This paper is being provided in response to the November 9, 2004 Office Action for the above-referenced application. In this response, Applicant has added Claims 77-93, canceled Claims 57 and 68, and amended Claims 1,3, 13, 22, 24, 25, 28, 34, 40, 49, 51, 52, 55, 58, 66, and 69 in order to clarify that which Applicant deems to be the claimed invention. Applicant respectfully submits that the amendments to the claims and the newly added claims are all supported by the originally filed application.

In response to the rejection of Claims 3, 57 and 68 under 35 U.S.C. § 112, ¶2, Applicant has amended Claim 3. Claims 57 and 68 have been canceled herein and the rejection as applied to Claims 57 and 68 is moot in view of this cancellation. Accordingly, Applicant respectfully requests that this rejection be reconsidered and withdrawn.

The rejection of Claims 22-27, 49-56 and 58-65 under 35 U.S.C. § 102(b) as being anticipated by Bertin et al. (U.S. Patent No. 6,400,681, hereinafter referred to as "Bertin") is hereby traversed and reconsideration thereof is respectfully requested. Applicant respectfully submits that Claims 22-27, 49-56 and 58-65, as amended herein, are patentable over the cited reference.

Applicant respectfully submits that Bertin is not a proper reference for rejecting the claims of the present application under 35 U.S.C. § 102(b) to Applicant's filing date of March 22, 2001. However, Applicant notes that the above-referenced claims may be rejected under 35 U.S.C. 102(e) using Bertin as a reference and will address this rejection accordingly.

Applicant's Claim 22, as amended herein, recites a method for processing a data operation request from a host computer system to a target data storage device comprising: determining a communication path from said host computer system to said target data storage device; sending a data operation request to a first data storage device connected to said host computer system by one of a local area network and a storage area network; determining, at said first data storage system in accordance with an opcode, whether said data operation request is a multipath multihop system call, wherein said data operation request includes a data structure comprising said opcode as a parameter identifying one of a plurality of types of calls; and in response to determining that said data operation request is a multipath multihop system call, forwarding said data operation request to an intermediate data storage device included in said communication path over a communication connection between said first data storage device and said intermediate data storage device. Claims 23-27 depend from Claim 22.

Applicant's Claim 49, as amended herein, recites a computer readable storage medium for use in processing a data operation request from a host computer system to a target data storage device comprising: machine executable code for determining a communication path from said host computer system to said target data storage device; machine executable code for sending a data operation request to a first data storage device connected to said host computer system by one of a local area network and a storage area network; machine executable code for determining, at said first data storage system in accordance with an opcode, whether said data operation request is a multipath multihop system call, wherein said data operation request includes a data structure comprising said opcode as a parameter identifying one of a plurality of types of calls; and machine executable code for forwarding said data operation request to an intermediate data storage device included in said communication path over a communication

connection between said first data storage device and said intermediate data storage device in response to determining that said data operation request is a multipath multihop system call. Claims 50-54 depend from Claim 49.

Applicant's Claim 55, as amended herein, recites a method executed by a data storage entity for routing a communication, the method comprising: determining a type associated with the communication, said communication comprising a data structure including a first parameter identifying said type from one of a plurality of types; determining, at said data storage entity in accordance with said type, whether said communication is a multipath multihop system call to be performed at a target not directly connected to said data storage entity; and in response to determining that said communication is a multipath multihop system call: determining a communication connection between the data storage entity and a connecting data storage entity; and sending said communication to said connecting data storage entity using said communication connection. Claims 56, and 58-65 depend from Claim 55.

Bertin relates to high speed packet switching networks and more particularly to a method and process for minimizing the time to select an optimal routing path between an origin and a destination node in large communication networks. (Col. 1, Lines 6-10). Bertin seeks to minimize the time to establish a connection between an origin and destination node. A path calculated at the time the connection is requested is recorded in a routing database. Alternate paths and new paths may be calculated and stored when the connection set up process is idle. (See Abstract) Bertin discloses that a general problem in the communication networks is to find a path between a source and a destination node. For datagrams, path selection is done for each packet. For virtual circuits, the path decision is done once at time of the connection

establishment. There are a large number of routing techniques described in Bertin's Background including adaptive routine, distributed routing, end to end routing, and connection oriented routing. (Col. 2, Line 20, Col. 3, Line 54).

Bertin's Summary of the Invention states that it is an object to his invention to minimize in access nodes the connection set up delay, and in particular, the time to select an optimal path throughout the network between the access node and the destination node. (Col. 5, Lines 48-52). Bertin's Figure 2 is a model of a communication system including a fast packet switching transmission system with eight nodes (201-208). Each network node includes a routing point where incoming data packets are selectively routed on outgoing trunks towards neighboring transit nodes. Such routing decisions are made according to the information in the header of the data packets. (Col. 7, Line 8-Col. 7, Line 29; Figure 2). Bertin discloses a routing controller which calculates the optimum paths through the network that satisfy a given set of quality of services specified by the user and to minimize the amount of network resources used to complete the communication path. (Col. 8, Lines 16-21).

Applicant's Claim 22 is not disclosed or suggested by Bertin in that Bertin neither discloses nor suggests ***a method for processing a data operation request from a host computer system to a target data storage device comprising: ... determining, at said first data storage system in accordance with an opcode, whether said data operation request is a multipath multihop system call, wherein said data operation request includes a data structure comprising said opcode as a parameter identifying one of a plurality of types of calls; and in response to determining that said data operation request is a multipath multihop system call, forwarding said data operation request to an intermediate data storage device included in said communication path over a communication connection between said first data storage device***

and said intermediate data storage device, as set forth in Applicant's amended Claim 22. Bertin is directed to a high speed packet switching network and seeks to minimize the time to establish a connection between an origin and destination node. Bertin discloses that a path calculated at the time the connection is requested is recorded in a routing database, and that alternate paths and new paths may be calculated and stored when the connection set up process is idle. However, Bertin appears silent with regard to any mention of a data operation request including an opcode as a parameter identifying a type of call. Further, Bertin neither discloses nor suggests making any determination based on types of calls as identified by an opcode, and also neither discloses nor suggests conditionally performing any processing based on a call type. Additionally, in his disclosures, Bertin uses the term "node", for example, in the background (e.g., Col. 4, Line 66-Col. 7, Line 39) and in the description (e.g., Col. 7, Lines 9-44; Figure 2). However, Applicant respectfully submits that Bertin appears to make no mention or suggestion that the "nodes" in his disclosure can be data storage devices. Accordingly, for at least these reasons, Bertin neither discloses nor suggests at least the features of Applicant's amended Claim 22 as set forth above.

For reasons similar to those set forth regarding Claim 22, Applicant's Claim 49 is neither disclosed nor suggested by Bertin in that Bertin neither discloses nor suggests ***a computer readable storage medium for use in processing a data operation request from a host computer system to a target data storage device comprising: ... machine executable code for determining, at said first data storage system in accordance with an opcode, whether said data operation request is a multipath multihop system call, wherein said data operation request includes a data structure comprising said opcode as a parameter identifying one of a plurality of types of calls; and machine executable code for forwarding said data operation request to***

an intermediate data storage device included in said communication path over a communication connection between said first data storage device and said intermediate data storage device in response to determining that said data operation request is a multipath multihop system call, as set forth in Claim 49.

For reasons similar to those set forth regarding Claim 22, Applicant's Claim 55 is neither disclosed nor suggested by Bertin in that Bertin neither discloses nor suggests ***a method executed by a data storage entity for routing a communication, the method comprising: determining a type associated with the communication, said communication comprising a data structure including a first parameter identifying said type from one of a plurality of types; determining, at said data storage entity in accordance with said type, whether said communication is a multipath multihop system call to be performed at a target not directly connected to said data storage entity; and in response to determining that said communication is a multipath multihop system call: determining a communication connection between the data storage entity and a connecting data storage entity, ...*** , as set forth in Claim 55.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

The rejection of Claims 1, 2, 4-21 and 28-48 under 35 U.S.C. § 103(a) as being unpatentable over Stevens et al. (U.S. Patent No. 5,949,760, hereinafter referred to as "Stevens") in view of Bertin is hereby traversed and reconsideration thereof is respectfully requested. Applicant respectfully submits that Claims 1, 2, 4-21 and 28-48, as amended herein, are patentable over the cited references, taken separately or in combination.

Claim 1, as amended herein, recites a method executed on a first data storage device for processing a multipath multihop system call comprising: determining, in accordance with an opcode, whether a data operation request is a multipath multihop system call, said data operation request including a data structure comprising said opcode as a parameter identifying one of a plurality of types of calls; and in response to determining that said data operation request is a multipath multihop system, call: determining a communication path between said first data storage device and a target data storage device; determining a first communication connection between said first data storage device and a second data storage device included in the communication path; and sending said data operation request to said second data storage device. Claims 2, and 4-21 depend from Claim 1.

Claim 28, as amended herein, recites a computer system comprising: a host initiating a data operation request; at least three data storage devices, said data operation request being directed to at least one of said at least three storage devices; a communication connection between said host and each of said at least three data storage devices, each of said communication connections including at least one of a storage area network and a local area network; wherein each of said at least three data storage devices includes machine executable code for: receiving and interpreting said data operation request over said communication connection that is one of a local area network and a storage area network; determining, in accordance with an opcode, if said data operation request is a multipath multihop system call, said data operation request including a data structure with said opcode as a parameter identifying one of a plurality of types of calls; and forwarding, in response to determining that said data

operation is a multipath multihop system call, a second portion of said data associated with said data operation request to an other of said at least three data storage devices. Claims 29-33 depend from Claim 28.

Claim 34, as amended herein, recites a data storage device comprising: machine executable code for determining, in accordance with an opcode, whether a data operation request is a multipath multihop system call, said data operation request including a data structure comprising said opcode as a parameter identifying one of a plurality of types of calls; and machine executable code that, in response to determining that said data operation request is a multipath multihop system call: determines a communication path between said data storage device and a target data storage device; determines a first communication connection between said data storage device and a second data storage device included in said communication path; and ends said data operation request to said second data storage device. Claims 35-48 depend from Claim 34.

Bertin is summarized above.

Stevens relates to a method for dynamically assigning communication links between nodes in a multi-hop communication radio network. (Col. 1, Lines 7-9). Stevens discloses establishing simultaneous communications between nodes having neighboring nodes in a multi-hop network of transceiver nodes arranged in neighborhoods by determining the quality of communication links between the nodes of a neighborhood and adjacent neighborhoods. A table of quality data is stored representing the quality of communication links between nodes of the neighborhood for each node. A set of performance criterion of desired service in the

neighborhood is stored. Possible link assignments are generated based upon the quality data. Link assignments are allocated between nodes of the neighborhood based on desired performance criterion. (See Abstract; Figure 2; Col. 2, Line 60-Col. 3, Line 55).

Applicant's Claim 1, as amended herein, is neither disclosed nor suggested by the references, taken separately or in combination, in that the references neither disclose nor suggest ***a method executed on a first data storage device for processing a multipath multihop system call comprising: determining, in accordance with an opcode, whether a data operation request is a multipath multihop system call, said data operation request including a data structure comprising said opcode as a parameter identifying one of a plurality of types of calls; and in response to determining that said data operation request is a multipath multihop system, call: determining a communication path between said first data storage device and a target data storage device; determining a first communication connection between said first data storage device and a second data storage device included in the communication path; and sending said data operation request to said second data storage device,*** as set forth in Claim 1. As set forth above, Bertin appears silent with regard to any mention of a data operation request including an opcode as a parameter identifying a type of call. Further, Bertin neither discloses nor suggests making any determination based on types of calls as identified by an opcode, and also neither discloses nor suggests conditionally performing any processing based on a call type. Bertin uses the term node in his descriptions, but Bertin appears to make no mention or suggestion that the nodes can be data storage devices. Stevens also appears silent regarding any mention of a data operation request including an opcode identifying a type of call. Further, Stevens also fails to disclose or suggest making any determination based on the type of call and conditionally

performing any steps based on this type. Accordingly, for at least these reasons, the references do not teach, disclose, or suggest the above features of Applicant's amended Claim 1.

For reasons similar to those set forth regarding Claim 1, Applicant's Claim 28 is neither disclosed nor suggested by the references in that the references neither discloses nor suggests ***a computer system comprising: ...at least three data storage devices, said data operation request being directed to at least one of said at least three storage devices;..wherein each of said at least three data storage devices includes machine executable code for: ...determining, in accordance with an opcode, if said data operation request is a multipath multihop system call, said data operation request including a data structure with said opcode as a parameter identifying one of a plurality of types of calls; and forwarding, in response to determining that said data operation is a multipath multihop system call, a second portion of said data associated with said data operation request to an other of said at least three data storage devices,*** as set forth in Claim 28.

For reasons similar to those set forth regarding Claim 1, Applicant's Claim 34 is neither disclosed nor suggested by Bertin in that Bertin neither discloses nor suggests ***a data storage device comprising: machine executable code for determining, in accordance with an opcode, whether a data operation request is a multipath multihop system call, said data operation request including a data structure comprising said opcode as a parameter identifying one of a plurality of types of calls; and machine executable code that, in response to determining that said data operation request is a multipath multihop system call: determines a communication path between said data storage device and a target data storage device; determines a first communication connection between said data storage device and a second data storage device***

included in said communication path; and sends said data operation request to said second data storage device, as set forth in Claim 34.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

The rejection of Claims 66, 67 and 69-76 under 35 U.S.C. § 103(a) as being unpatentable over Gopel et al. (U.S. Patent No. 4,748,658, hereinafter referred to as "Gopel") in view of Bertin is hereby traversed and reconsideration thereof is respectfully requested. Applicant respectfully submits that Claims 66, 67 and 69-76, as amended herein, are patentable over the cited references, taken separately or in combination.

Claim 66, as amended herein, recites ***a computer program product for routing a communication by a data storage entity comprising: machine executable code for determining a type associated with the communication, said communication comprising a data structure including a first parameter identifying said type from one of a plurality of types; machine executable code that determines, at said data storage entity in accordance with said type, whether said communication is a multipath multihop system call to be performed at a target not directly connected to said data storage entity; and machine executable code that, in response to determining that said communication is a multipath multihop system call: determines a communication connection between the data storage entity and a connecting data storage entity; and sends said communication to said connecting data storage entity using said communication connection.*** Claims 67, and 69-76 depend from Claim 66.

Bertin is summarized above.

Gopal relates to an architecture for allocating resources in a large network, for example, allocation of trunks in a public telephone network. (Col. 1, Lines 8-10). Gopel discloses a control network for making routing decisions in an associated telecommunications network. A database containing exact information about the telecommunications network circulates in a ring-like control network. When an originating office wishes to set up a connection, it seizes one of the processors in the control network and informs it of the desired connection. A list of possible calls is made available to the seized processor. The processor runs a set-up algorithm using the database and makes a routing decision which is communicated back to the originating office. The algorithm uses the complete representation of a number of busy trunks in each trunk group. As part of the call set-up the database is also updated so that it knows what resources have been allocated. At call completion, the originating central office updates the database so that the database knows which calls have been released. In this way, the database is always consistent with the current state of the network. (See Abstract; Col. 3, Lines 25-47).

Applicant's Claim 66, as amended herein, is neither disclosed nor suggested by the references, taken separately or in combination, in that the references neither disclose nor suggest ***a computer program product for routing a communication by a data storage entity comprising: machine executable code for determining a type associated with the communication, said communication comprising a data structure including a first parameter identifying said type from one of a plurality of types; machine executable code that determines, at said data storage entity in accordance with said type, whether said communication is a multipath multihop system call to be performed at a target not directly***

connected to said data storage entity; and machine executable code that, in response to determining that said communication is a multipath multihop system call: determines a communication connection between the data storage entity and a connecting data storage entity; and sends said communication to said connecting data storage entity using said communication connection, as set forth in Claim 66. Bertin appears silent with regard to any mention of a data operation request including an opcode as a parameter identifying a type of call. Further, Bertin neither discloses nor suggests making any determination based on types of calls as identified by an opcode, and also neither discloses nor suggests conditionally performing any processing based on a call type. Bertin uses the term node in his descriptions, but Bertin appears to make no mention or suggestion that the nodes can be data storage devices. Gopal also appears silent with respect to any disclosure or suggestion of a data operation request including an opcode as a parameter identifying a type of call. Further, Gopal also appears to be silent regarding making any determination based on a type of call and conditionally performing any processing based on a call type. Accordingly, for at least these reasons, the references neither disclose nor suggest at least the above features of Claim 66.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

Applicant respectfully submits that newly added Claims 77-93 are also patentable over the cited art.

Based on the above, Applicant respectfully requests that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 617-248-4042.

Respectfully submitted,
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